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Department of Energy
Ohio Field Office
Fernald Area Office
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DEC 04 1997

DOE-0209-98

Mr. James A. Saric, Remedial Project Manager
U.S. Environmental Protection Agency
Region V-SRF-5J
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

Mr. Tom Schneider, Project Manager
Ohio Environmental Protection Agency
401 East 5th Street
Dayton, Ohio 45402-2911

Dear Mr. Saric and Mr. Schneider:

CONTRACT DE-AC24-92OR21972, CERTIFIED FOR CONSTRUCTION TECHNICAL SPECIFICATIONS AND CONSTRUCTION DRAWINGS FOR AREA 2, PHASE I EXCAVATION PACKAGE

The purpose of this letter is to transmit, for your review and approval, the Certified for Construction (CFC) version of the Area 2, Phase I Technical Specifications and Construction Drawings for the Excavation Package. A 95% draft version of these specifications and drawings were previously submitted to you with the Integrated Remedial Design Package (IRDP) for Area 2, Phase I on October 23, 1997. These documents were updated and revised based on internal reviews and preliminary discussions with both the U.S. Environmental Protection Agency (U.S. EPA) and Ohio Environmental Protection (OEPA). These revised documents supersede the technical specifications and construction drawings that were previously submitted.

These Technical Specifications and Construction Drawings were incorporated into the Southern Waste Units/On-Site Disposal Facility (SWU/OSDF) Phase II Request for Proposal (RFP) that was posted on the Fernald Environmental Management Project (FEMP) website November 21, 1997.

If you have any questions or comments on these documents, please contact Robert Janke at (513) 648-3124.

Sincerely,

Johnny W. Reising
Fernald Remedial Action
Project Manager

FEMP:Nickel

Enclosure: As Stated

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Technical Specifications
for
Area 2, Phase I
Southern Waste Units
Remedial Action Project
Excavation Package
Contract No. FSC 614
FDF Project No. 20402

November 1997
Revision 0

20402-TS-0001

Environmental Remedial Action Project
Fernald Environmental Management Project
Fernald, Ohio
Document 20402-TS-0001

175 Tri-County Parkway
Cincinnati, Ohio 45246

U.S DEPARTMENT OF ENERGY

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Contract No. FSC 614

AREA 2, PHASE I
SOUTHERN WASTE UNITS
REMEDIAL ACTION PROJECT
EXCAVATION PACKAGE
TECHNICAL SPECIFICATIONS

PARSONS

Approved by: C. Schroeder 11/14/97

Carlton Schroeder, Project Manager — Date

U.S. DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
CONTRACT NO. FSC 614

WBS NO. 1.1.1.1.2.3.6
TECHNICAL SPECIFICATIONS
for
AREA 2, PHASE I
SOUTHERN WASTE UNITS
REMEDIAL ACTION PROJECT
EXCAVATION PACKAGE
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U.S DEPARTMENT OF ENERGY

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Contract No. FSC614

AREA 2, PHASE I
SOUTHERN WASTE UNITS
REMEDIAL ACTION PROJECT
EXCAVATION PACKAGE
TECHNICAL SPECIFICATIONS

Division 2

PARSONS

Prepared by: Franklin M. Parton Jr. 11/14/97
Date

Checked by: [signature] 11/14/97
Date

STATE OF OHIO
FRANKLIN M. PARTON, JR.
NO. E-57614
REGISTERED
PROFESSIONAL ENGINEER

SECTION 02050
SURVEYING

PART 1 GENERAL

1.1 SCOPE

This section includes the requirements for surveying, including but not limited to:

A. Establish survey benchmarks and baselines.

B. Setting limits and boundaries of construction activities.

C. Perform surveys for:
   1. Verification of the existing conditions.
   2. Support surveys during the construction activities.
   3. Measurement and payment.
   4. Conformance checks.

D. Prepare and furnish as-built construction drawings.

1.2 RELATED SECTIONS AND PLANS

A. Section 02275 - Erosion and Sediment Control.

B. Part 8 - Environmental Health and Safety, and Training Requirements.

1.3 REFERENCES

National Geodetic Survey Standards.

1.4 QUALIFICATION

A. Oversight for the survey work shall be provided and certified by a Land Surveyor licensed in the State of Ohio.

B. Survey work shall be performed under the direct supervision of a person who has at least 5 years of experience in construction surveying.

C. Work performed in referencing or re-establishment of FDF or United States survey monuments shall be stamped/certified by an Ohio licensed land surveyor.

1.5 SUBMITTALS

A. Submit qualifications for land surveyor licensed in the State of Ohio to the Construction Manager within 10 calendar days from Notice to Proceed for review and approval.

B. On request by the Construction Manager, submit documentation verifying accuracy of survey work.

C. Submit survey notes, field notes, sketches and drawings for the following surveys:

1. Preliminary surveys.
2. Prior to commencement of construction activities.
3. Intermediate surveys.
4. Before winter break(s) and at completion of the Contract.
5. At completion of excavation of the Southern Waste Units (SWUs) and stockpiles including completion of Above WAC excavation, lead contaminated soil excavation, Excavation Grading Plan-1, Excavation Grading Plan-2 and Excavation Grading Plan-3.
6. Measurement and payment surveys.
7. Final surveys.

D. Submit two (2) copies of field notes, sketches and drawings prepared by the licensed Land Surveyor, to the Construction Manager on a weekly basis or upon request by the Construction Manager. Field notes shall be legibly recorded on standardized field note books. Notation shall be consistently applied to survey work; the stake marking format and the field book notation

shall be compatible. Identify survey benchmarks on the field notes, sketches and drawings.

E. Upon completion of the survey work, provide the Construction Manager the original field note books, layout, computations, sketches and certified drawings in Intergraph Microstation (version 5.0 or later) ".dgn" files.

F. Submittal requirements for the environmental health and safety requirements shall be as specified in Part 8.

1.6 PROJECT RECORD DOCUMENTS

A. Maintain on site a complete and accurate log documenting survey work as it progresses.

B. Maintain on site drawings clearly showing survey benchmarks and baselines.

C. Maintain on site an accurate and current set of red-line drawings with as-built locations. Data shall be incorporated within one week of completion of the respective construction activity.

1.7 EXAMINATION OF THE EXISTING CONDITIONS

A. Prior to the start of site preparation and excavation of the impacted material, verify the accuracy of the existing conditions shown on the Construction Drawings. Immediately notify the Construction Manager in writing of deviations from the existing conditions indicated on the Construction Drawings.

B. Verify the existing structures, utilities, wells and associated protection, topography, erosion and sediment control measures, construction and radiological control fences, retention basins and appurtenances and drainage features shown on the Construction Drawings and notify the Construction Manager of any differences or conflicts with proposed work. Stake the locations of

excavations and review proposed work with the Construction Manager in the field, as shown on the Construction Drawings.

1.8 SURVEY BENCHMARKS

A. Locate and verify benchmarks as shown on the Construction Drawings in accordance with this Section.

B. Protect and preserve benchmarks.

C. Replace disturbed or damaged survey benchmarks at no additional cost to FDF.

1.9 HEALTH AND SAFETY REQUIREMENTS

Environmental Health and Safety, and Training requirements shall be as specified in Part 8.

PART 2 PRODUCTS

A. Provide materials as required to perform the surveys, including, but not limited to: instruments, tapes, rods, measures, mounts, tripods, stakes, hubs, nails, ribbon, and other reference markers.

B. Survey instruments shall be precise and accurate to meet the needs of the project. Survey instruments shall be capable of reading to a precision of 0.001 feet with a setting accuracy of 8 seconds.

PART 3 EXECUTION

3.1 GENERAL

A. Establish elevations, lines, and levels. Locate and lay out by instrumentation and similar appropriate means. Topographic contours shall be shown to nearest foot. Field run data shall be taken to adjacent existing undisturbed area (100 ft. minimum overlap) to create a smooth contour transition.

B. Maintain accurate and complete notes of surveys:
   1. Handwritten survey notes and information shall be documented in survey field books. A copy of the numbered, dated and signed field book pages shall be given to the Construction Manager weekly, or upon request, for use in reviewing the work.
   2. Electronically collected field survey information shall be collected and backup equipment shall be available in the event of equipment malfunction.
      a. Electronic format for printed output of data collectors field survey notes shall be compatible with the field book notation format.
      b. Electronic format for printed output of data collectors field work shall be compatible with the Contractor's and Construction Manager's computer equipment and software for reviewing the work. A copy of the data disk shall be submitted to the Construction Manager monthly or upon request.

C. The precision of horizontal and vertical control shall meet or exceed Third-Order, Class I and Third-Order accuracies, respectively, as defined by National Geodetic Survey Standards. Elevation shall be referenced to National Geodetic Vertical Datum (NGVD) of 1929 and horizontal coordinates to North American Datum (NAD) 1983.

D. Conformance check surveys for elevation and for horizontal coordinates shall be to the nearest 0.01 foot and for angles to the nearest 20 seconds.

E. Measurement and payment surveys for elevation and for horizontal distance shall be to the nearest 0.1 foot +/- 0.05 foot.

F. Perform construction layout surveys in advance of scheduled construction activities. The Contractor is responsible for rework and/or construction delays caused by survey or staking errors.

G. Set grade stakes and slope stakes in accordance with accepted surveying practices.

H. Set grade stakes for construction activities as the work progresses.

I. Establish temporary survey benchmarks, as necessary, to support construction activities.

J. Benchmarks, Accuracy and Documentation:

1. Record the following information in survey notebooks for each benchmark established:
   a. Designation of survey benchmark;
   b. Coordinates based on State Planer NAD;
   c. Elevation based on NGVD;
   d. Date of establishment;
   e. Description and sketch of survey benchmark location; and
   f. Survey benchmarks shall be referenced to a minimum of three features that can be seen from the survey benchmark.
2. Document survey work in the field notebooks using the format and procedures described below:
   a. Title and consecutive notebook number on the front cover;
   b. Consecutively numbered pages;
   c. Table of contents, indicated by survey task, on the first numbered page;
   d. Legend indicating symbols and abbreviations used in survey notes;
   e. Names of survey team for each task;
   f. Notes on weather, equipment, etc.;
   g. Date and time on each page to indicate when work was recorded;
   h. Notes in a uniform character such that they can be interpreted and used by anyone with survey knowledge;
   i. Description and/or sketches of the existing survey control used.

3.2 SUPPORT SURVEYS

A. Preliminary Surveys:
   1. Verify location of the existing survey benchmarks and the existing conditions specified in this Section prior to starting work.
   2. Perform topographic surveys of areas to be excavated prior to construction activities.
   3. Establish location of benchmarks required for locating baseline grid. Establish baselines and grid as shown on the Construction Drawings.
   4. Establish location for the installation of the erosion and sediment control measures specified in Section 02275.
   5. Establish limits of excavation at the SWU and at the stockpiles. Maximum staking interval shall be 50 feet unless otherwise approved by the Construction Manager.
   6. Perform surveys for conformance checks as specified in this Section.

B. Intermediate Surveys:
   1. Perform surveys during progress of the construction activities to verify the accuracy of field work and as directed by the Construction Manager.
   2. Perform surveys for measurement and periodic progress payment as specified in this Section.
   3. Perform surveys during progress of excavation to confirm limits of the excavation. In areas of above WAC excavation and lead contaminated soil excavation, perform surveys at each lift.
   4. Perform conformance check surveys as specified in this Section.

C. Final Surveys:
   1. Final topographic survey shall be at minimum 50 foot intervals or as required to define the topography. Additionally, the following points shall be surveyed and noted as applicable.
      a. Grade breaks.

b. Points of horizontal curvature and tangency.
c. Ditches, pipes and channels: Stake ditches, channels and culverts such that layout remains undisturbed during construction.
d. Limits of final excavation.

2. Perform survey for conformance checks as specified in this Section.
3. Perform survey for final measurement and payment.

3.3 SURVEYS FOR MEASUREMENT AND PAYMENT

A. Perform surveys for periodic progress payments and final payment to determine quantities of work.

B. Calculate and certify quantities of work and submit survey notes and calculations to the Construction Manager for review, evaluation and payment.

3.4 SURVEYS FOR CONFORMANCE CHECKS

Perform conformance check surveys upon completion of a given construction activity. Provide the following minimum spacings and locations for survey points:

A. A line of survey points spaced not more than 50 feet apart shall be taken, including along grade breaks (this will include the inside edge and outside edge of any bench on a slope).

B. A line of survey points spaced not more than 50 feet apart shall be taken at the top of any pipes and any appurtenances, and at the top and invert of any storm culverts.

END OF SECTION

SECTION 02150
TRAFFIC CONTROL

PART 1 GENERAL

1.1 SCOPE

This section includes, but is not limited to, the requirements for the following activities:

A. Traffic Plan.

B. Construction and Radiological Control fencing.

C. Protection of the existing wells.

1.2 RELATED SECTIONS AND PLANS

A. Section 02050 - Surveying.

B. Section 02205 - Impacted Material Excavation.

C. Section 02275 - Erosion and Sediment Control.

D. Part 6 - Statement of Work.

E. Part 8 - Environmental Health and Safety, and Training Requirements.

1.3 REFERENCES

State of Ohio, Department of Transportation (ODOT): Construction and Material Specification, January, 1997.

1.4 SUBMITTALS

A. Submit a Traffic Plan within ten (10) calendar days from the Notice to Proceed for review and approval by the Construction Manager. The Traffic Plan shall include as a minimum:

1. Planned traffic routes for hauling excavated impacted material from the Southern Waste Units (SWUs), stockpiles and Retention Basins 1, 2 and 3 to the On-Site Disposal Facility (OSDF), the Lead Contaminated Soil Container Transfer Area and OU-1 Stockpile Area.
2. Access from the stockpiles to the haul roads.
3. Planned traffic routes within the SWUs.
4. Planned crossings of major utilities (such as gas line, drinking water line, power lines and groundwater line), and a plan to protect the existing utilities at the crossings. The crossing protection should be a minimum of a 1-inch thick steel plate or an equivalent alternative. Length and width of steel plate shall be as required to protect the existing utilities. Provide calculations to support equivalent alternatives to the 1-inch thick steel plate.
5. Crossings for pedestrians and equipment as shown on the Construction Drawings.
6. Maintenance and cleaning of haul road, planned traffic routes, pedestrian crossings and equipment crossings.
7. Description of impact to traffic control during long breaks in work.
8. Access control to and from radiological controlled areas and certified areas.
9. Submit detailed drawings depicting the location of a traffic signal system including the following;
   a. Site Plan showing equipment locations.
   b. List of equipment to be used as a part of the traffic signal system.
   c. Plan timing data for the signals.

B. Within ten (10) calendar days from the Notice to Proceed, submit a Dust Control Plan in accordance with Part 6 for approval by the Construction Manager.

1.5 HEALTH AND SAFETY REQUIREMENTS

Environmental Health and Safety, and Training requirements shall be as specified in Part 8.

1.6 DEFINITIONS

There are three types of material haul crossings identified: Type I, Type II and Type III:

A. Type I crossing occurs from an uncontrolled area to an uncontrolled area crossing a contaminated road.

B. Type II crossing occurs from a controlled area to a controlled area crossing a contaminated road.

C. Type III crossing occurs from an uncontrolled area to an uncontrolled area crossing an uncontrolled road.

PART 2 PRODUCTS

2.1 MATERIALS

A. Suppressant agent for dust control shall be pine sap emulsion as approved by the Construction Manager.

B. Materials for traffic control shall be as defined by the Traffic Plan and shall conform to ODOT specifications unless approved by the Construction Manager.

C. Construction fence shall be orange, high density polyethylene, four-foot height, opening size approximately 4 inches by 1/2 inch, minimum tensile strength of 2000 lbs/ft of width. Posts shall be steel "T" as indicated on the Construction Drawings.

D. Radiological control fence shall be as specified for construction fence, except the color shall be yellow.

E. Type I and II crossings: none

F. Type III crossing: Supply all equipment and materials necessary to install a 4-way traffic signal system. System shall be portable, with traffic actuations in two of the four directions.

PART 3 EXECUTION

3.1 GENERAL

A. Verify the existing conditions as specified in Section 02050.

B. Install erosion and sediment control measures and repair, as needed, the existing erosion and sediment controls prior to the start of site preparation and excavation activities in accordance with Section 02275.

3.2 DUST CONTROL

Dust control shall be as specified in Part 6 and the Dust Control Plan.

3.3 CONSTRUCTION AND RADIOLOGICAL CONTROL FENCING

A. Prior to initiating work activities examine existing construction fencing and radiological control fencing as shown on the Construction Drawings and as specified in Part 8.

B. Maintain and repair construction and radiological control fences until completion of the Contract.

C. Locate and install radiological control fence around the excavation of the Above WAC Material as directed by the Construction Manager.

3.4 TRAFFIC CONTROL

Control traffic in accordance with the approved Traffic Plan.

3.5 PROTECTION OF THE EXISTING WELLS

If damage to existing monitoring wells and/or extraction wells occurs, repairs and/or replacement will be completed by FDF at the Contractor's expense.

3.6 MATERIAL HAUL CROSSINGS

A. General
Contractor may be stopped at any crossing greater than 5 minutes at any crossing during an emergency event in which site Emergency Response Team or fire fighting force is activated, Utility Engineer is investigating, or a nearby utility is in need of immediate repair.

B. Type I and II Crossings
Contractor shall allow a 10 minute road delay per hour. This may consist of one (1) ten minute closure on the hour or two (2) 5 minute closures on the half hour as specified by the Construction Manager. The delay will occur simultaneously at all affected haul road crossings (e.g. crossings with the Impacted Material Haul Road) to allow for site traffic and pedestrians to cross.

C. Type III Crossings
Site traffic will yield to Contractor at Type III crossings.

3.7 EQUIPMENT PARKING

A. Clean Equipment Parking Area
1. Clean equipment parking area shall be within a support area.
2. No personal vehicles shall be allowed in the clean equipment parking area.

B. Contaminated Equipment Parking Area

1. The contaminated equipment parking area shall be kept free of standing water.
2. The contaminated equipment parking area shall be kept free of debris.
3. The contaminated equipment parking area shall be located as close as possible to the radiological control point access.
4. See Section 02205 for additional requirements for contaminated equipment.

END OF SECTION

SECTION 02205
IMPACTED MATERIAL EXCAVATION

PART 1 GENERAL

1.1 SCOPE

This section includes the requirements for the excavation, loading, hauling, and unloading of impacted materials and related activities including, but not limited to:

A. Excavation of impacted materials from the Southern Waste Units (SWU) area and impacted material stockpiles designated on the Construction Drawings, including unclassified impacted material, Above Waste Acceptance Criteria (WAC) material, lead contaminated soil, Special Materials, and sediment.

B. Loading and hauling of the excavated impacted materials from the SWU area and impacted material stockpiles and unloading of this material in the OSDF.

C. Loading of the Special Materials excavated from the SWU area and impacted material stockpiles and transferring to the Special Material Transfer Area shown on the Construction Drawings.

D. Loading and hauling of the excavated Above WAC material and unloading and placing in the OU-1 Stockpile Area shown on the Construction Drawings.

E. Loading, and containerizing of excavated lead contaminated soil material from the SWU area and staging of these containers in the Lead Contaminated Soil Container Transfer Area shown on the Construction Drawings.

F. Dust control as specified in Part 6.

G. Hand excavation around the existing wells to remain within the SWU excavation area and impacted material stockpile areas.

1.2 RELATED SECTIONS AND PLANS

A. Section 02050 - Surveying.

B. Section 02150 - Traffic Control.

C. Section 02210 - Presumed Asbestos Containing Materials (PACM).

D. Section 02212 - Material Identification and Documentation.

E. Section 02275 - Erosion and Sediment Control.

F. Section 02850 - Equipment Wash Facility.

G. Section 02900 - Seeding.

H. Part 6 - Statement of Work.

I. Part 8 - Environmental Health and Safety, and Training Requirements.

J. Impacted Materials Placement Plan, On Site Disposal Facility, October 1997, Revision I.

K. On-Site Disposal Facility (OSDF) Phase II Technical Specifications.

1.3 REFERENCES

A. Area 2 Phase I Southern Waste Units Implementation Plan for Operable Unit 2, October 1997, Revision C.

B. Waste Acceptance Criteria Attainment Plan for the On Site Disposal Facility, August 1997, Revision B.

C. Fernald Environmental Management Project (FEMP) Plan PL-2194, Spill Prevention Control and Countermeasure (SPCC) Plan, September 1996, Revision 3.

D. Fernald Environmental Management Project (FEMP) Procedure. RP-0010, Identification and Movement of Radioactive Material, May 1996, Revision 2.

E. Fernald Environmental Management Project Procedure (FEMP) PT-0007 Packaging Low Level Waste for Off-Site Shipment, August 1997, Revision 3.

F. State of Ohio, Department of Transportation (ODOT), Construction and Material Specifications, January 1997.

1.4 SUBMITTALS

Submit an Excavation Work Plan to the Construction Manager within fifteen (15) calendar days from the Notice to Proceed for review and approval. The Excavation Work Plan shall be integrated into the Safe Work Plan specified in Part 6. The Excavation Work Plan shall include, as a minimum, the following:

1. Excavation, loading, hauling, and unloading methods and equipment, by size and type, for the impacted materials including unclassified impacted materials, the Above WAC Material, lead contaminated soil, stockpiles, and sediment. Include methods for separating category 2, 3, 4 and 5 impacted material specified in the Impacted Material Placement Plan for OSDF during excavation and size reduction methods to meet the WAC specified in the Impacted Materials Placement Plan for OSDF. Include steps taken to optimize WAC for support of the impacted material placement.
2. Technical approach for the coordination and implementation of the excavation related activities including submittals, surveying, fencing, erosion and sediment control, water management, stump grinding, loading requirements, equipment wash, haul road management, material identification and documentation, seeding, stabilization of exposed excavated areas and dust control.
3. Schedule for impacted material excavation with integrated Project Construction Schedule as specified in Part 6, for the excavation, including loading, hauling and unloading, and excavation related activities, showing

sequence, duration, critical activities, resources for each activity, number of crews and crew size, and start and completion date for each activity.

4. Environmental Health and Safety, and Training requirements for the excavation, loading, hauling and unloading, including a plan for coordinating personnel and equipment in the excavation areas.
5. Methods for excavation, separation, and packaging of PACM in accordance with Section 02210.
6. Methods for the excavation, managing, loading, segregation, transferring and staging of Special Materials, Above WAC Material, and lead contaminated soil.
7. Loading, hauling and unloading methods for the Above WAC impacted materials to the OU-1 Stockpile Area, including:
   a. Inclement weather operations.
   b. Spreading, grading, and compaction.
   c. Maintenance of surface conditions and drainage.
   d. Temporary shutdown and work stoppage.
   e. Methods to prevent haul equipment tires from coming in contact with Above WAC Material.
8. Location, sequencing, and construction of interim working stockpiles, if necessary.
9. Sequencing of interceptor ditch construction.
10. Methods for complying with the FEMP Plan PL-2194, for Spill Prevention and Control and Countermeasure (SPCC) Plan.

1.5 EXISTING CONDITIONS

Prior to start of excavation of the impacted materials, examine the existing conditions as specified in Section 02050.

1.6 HEALTH AND SAFETY REQUIREMENTS

Environmental Health and Safety, and Training requirements shall be as specified in Part 8.

1.7 DEFINITIONS

A. Impacted Material: Impacted material is defined as material placed in the existing stockpiles, fill material in the SWU, sediment accumulated in the retention basins, ditches, and at erosion and sediment control measures, and non-fill material with contaminant levels above established Final Remediation Levels (FRLs).

B. Unclassified Impacted Material: Unclassified impacted material shall be impacted material encountered during excavation, regardless of type, character, composition, and condition thereof, unless otherwise specified in this Section. Unclassified impacted material also includes excavated material from the impacted material stockpiles, sediment accumulated in the interceptor ditches, Retention Basins 1, 2 and 3, erosion and sediment control measures and SWU, except lead contaminated soil, Above WAC Material and Special Material.

Categories of unclassified impacted material shall be as specified in the Impacted Materials Placement Plan for the OSDF. Unclassified impacted material also includes debris encountered during excavation in the SWU and the impacted material stockpiles. Distribution of debris mixed with soil or soil like material in the excavation of the unclassified impacted material is not anticipated to be uniform throughout the SWU and impacted material stockpiles. Debris may comprise up to 15 percent of the total volume of impacted material. Debris consists of impacted material such as construction materials, concrete, asphalt, steel rebar, non-friable PACM and other materials not defined as a Special Material. Criteria for debris shall be as specified in the Impacted Materials Placement Plan and Waste Acceptance Criteria Attainment Plan for OSDF.

C. Lead Contaminated Soil: Soil with lead concentrations above the FRL for lead [400 milligram/kilogram (mg/kg)] that may, upon further Toxicity Characteristic Leaching Procedure (TCLP) analysis, qualify as a Resource

Conservation and Recovery Act (RCRA) toxicity characteristic hazardous waste.

D. Above WAC Material: Soil, soil mixed with debris, debris, or soil-like impacted material with total uranium concentrations above the OSDF total uranium WAC [1030 mg/kg], or any other material that does not meet the OSDF WAC.

E. Special Materials: Impacted material which requires special handling shall be as listed below:
   1. Friable PACM, as specified in Section 02210;
   2. Nonpressurized (i.e. in-tact) containers, including drums, boxes, cans;
   3. Pressurized containers;
   4. Pumps and piping;
   5. Non-soil residues, including green salt, black oxide, orange oxide, and sump cake;
   6. Transformers and electrical equipment;
   7. Lead acid batteries;
   8. Uranium metal, including derbies, ingots and irregularly shaped scrap;
   9. Medical/infectious waste;
   10. Tires;
   11. Miscellaneous debris, including oil and air filters, personal protective equipment (PPE), radiators, cables, wires, tools, heavy equipment, office materials and documents, and lead flashing.
   12. Acid bricks.

PART 2 PRODUCTS

2.1 MATERIALS

A. FDF shall furnish metal boxes and lids for lead contaminated soil. Each box shall be approximately 4 x 4 x 7 foot and weigh approximately 1,100 pounds empty. Contractor shall notify FDF a minimum of thirty (30) calendar days prior to the start of lead contaminated soil excavation. Contractor shall load boxes to a maximum gross weight of 9,000 pounds.

B. FDF shall furnish materials, equipment, and personnel for radiological characterization and monitoring of the impacted material.

C. Aggregate base shall meet the requirements of ODOT Item 304.

2.2 EQUIPMENT

A. Provide equipment of size and type to excavate, load, haul, and unload impacted material to meet the Contract requirements.

B. Provide equipment of size and type to load, haul, unload, place, manage, and compact material in the OU-1 Stockpile Area to meet the Contract requirements.

C. Equipment to be operated over the existing Impacted Material Haul Road, including equipment to be used to haul impacted material, shall be equal to or less than the gross vehicle weight, tire pressure and axle loading for a Caterpillar CAT D300E truck (gross vehicle weight of 106,700 pounds, tire pressure of 60 psi, and axle load of 37,400 pounds).

Pavement width of the existing two way Impacted Material Haul Road width is 24 feet. Select equipment and equipment width to ensure safe operation on this two-way road.

D. Equipment, including equipment to be used to haul impacted materials on the Impacted Material Haul Road, shall have enclosed cabs. Enclosed cab is defined as an equipment cab isolated from outside environment (intact windows, doors, panels and floors surrounding driver with all windows and doors shut) which provides a barrier from intrusion of outside airborne particles. Any HVAC (heating, ventilating or air conditioning) units associated with the equipment cab must not provide a direct path for outside air to enter (air conditioner on air recirculate mode), unless the air is passed first through a HEPA filter pulled directly from outside the cab.

E. Provide water tank trucks, tank trucks for the suppressant agent and crusting agent, portable tanks, pressure distributors, piping or other equipment designed to apply dust suppressant and crusting agent uniformly and in controlled quantities to variable surface widths to provide dust control as required in Part 6.

F. Provide stump grinder to meet the Contract requirements.

G. Provide equipment to weigh loaded lead contaminated soil boxes.

PART 3 EXECUTION

3.1 GENERAL EXCAVATION REQUIREMENTS

A. Manage construction fence and radiological control fence as specified in Section 02150 and Part 6 and as shown on the Construction Drawings. Signs and sign posts for the radiological control areas shall be furnished and installed by FDF.

B. Install and manage traffic control measures and devices as specified in Section 02150.

C. Survey and layout excavation limits and grid in accordance with Section 02050 and as shown on the Construction Drawings.

D. Install and manage erosion and sediment control measures in accordance with Section 02275. Construct and manage Interceptor Ditch No. 1 prior to excavation of Inactive Flyash Pile (IFP). Install Interceptor Ditch No. 2 as soon as practical in conjunction with the excavation depicted on the Construction Drawings.

E. Provide material identification and documentation in accordance with Section 02212.

F. Continuously observe excavations for Special Materials and change in materials and immediately notify the Construction Manager of a change in impacted material and finding of Special Material.

G. Dust control shall be in accordance with Part 6 and the Dust Control Plan. Dust control shall be provided during excavation, segregation, size reduction, loading, hauling, transferring, unloading, and other related activities, and during off-hours as specified in Part 6.

H. Location of the interim working stockpiles shall be within the limits of the SWU and as approved by the Construction Manager. Interim working stockpiles shall be removed within a maximum of thirty (30) calendar days.

I. Blasting, including use of explosives or explosive devices, is not permitted.

J. Water management shall be as specified in Section 02275 and Appendix B of the Area 2, Phase I Southern Waste Units Implementation Plan for Operable Unit 2, "Surface Water Management Plan".

K. Impacted material excavation and related activities shall be performed in accordance with the approved Excavation Work Plan.

L. FDF and regulatory agencies may collect impacted material samples from the excavation, haul equipment and in the OSDF at any time during the project.

M. Unexpected discovery of cultural resources: Upon the unexpected discovery of any historic, prehistoric, or archeological site, feature or object, immediately cease ground disturbing activities at the find and contact the Construction Manager.

N. During excavation segregate Category 2 material larger than 12-inches and maximize volume of Category 1 material. Size reduce segregated Category 2 material to meet physical WAC specified in Impacted Materials Placement Plan for OSDF.

O. Excavate and segregate material as required for construction of protective layers, select impacted material and contouring layer as required for placement, and impacted material required for placement of Category 2, 3, 4 and 5 materials as specified in the Impacted Materials Placement Plan for OSDF.

P. The following additional requirements shall apply to equipment for excavation, loading, hauling, and unloading:

1. Equipment used for excavation, loading, hauling and unloading of the impacted material from the SWU and the stockpiles shall be clearly and conspicuously marked by the Contractor as "Radioactive Material" in accordance with FEMP Procedure RP-0010.
2. Equipment used during excavation, loading, hauling, and unloading of the impacted material and during periods of non-use (evenings, weekends, holidays) shall be kept within the SWU and in OU-1 Stockpile Area.
3. Equipment used for hauling of the impacted material shall be equipped with an automatic cover. The cover shall be in place during all periods of equipment movement on-site, whether empty or full.
4. Equipment used for excavation, loading, hauling, and unloading impacted material shall not be permitted to leave the radiological control areas until equipment decontamination activities are completed by the Contractor and radiological survey of the equipment is performed by FDF.
5. Equipment cab shall remain closed and operators shall not be allowed out of the equipment in any posted contamination area without appropriate PPE except in emergency situations.

6. Equipment used during the excavation of the Above WAC Material, lead contaminated soil material, and soil placement in the OU-1 Stockpile Area shall stay in the respective areas until completion of the excavation and placement.
7. Haul equipment transferring material on the Impacted Material Haul Road shall remain on the road as much as practical while waiting to dump or be loaded. Sequence equipment to minimize time spent within the SWU excavation, OSDF cell and OU-1 Stockpile Area

Q. Loading Requirements:
1. Haul equipment shall be loaded so as to minimize load shifting during transit.
2. Visually check impacted material for free liquid prior to loading. Free liquid in the impacted material before loading shall be as specified in the Impacted Materials Placement Plan for OSDF.

R. Hauling requirements:
1. Haul equipment shall be washed at the equipment wash facilities before entering the Impacted Material Haul Road at the SWU and OSDF. Requirements for equipment wash shall be as specified in Section 02850.
2. Maintain the Impacted Material Haul Road free of visible mud, soil, soil-like material, debris, or impacted material in accordance with Part 6.
3. Provide dust control for the haul roads on a continual basis in accordance with Part 6.
4. Haul equipment traffic shall remain on the haul roads designated on the Construction Drawings. Equipment that enters the haul roads shall not be allowed to exit, except at the SWU area, stockpiles, OSDF Debris Transfer Area and/or the OSDF, without approval by the Construction Manager.
5. Tracked equipment shall be prohibited from hauling, operating, or tracking over or on the Impacted Material Haul Road.

S. Unless otherwise specified, FDF will perform monitoring of the surface of each lift to be excavated to determine if WAC has been attained. Contractor shall excavate in another location during monitoring and while awaiting the results, at no additional cost to FDF. FDF monitoring of each lift will take at least two (2) work days after the lift is graded and ready for FDF monitoring. Duration for FDF monitoring shall be extended by one (1) day for each day precipitation occurs.

T. FDF will not perform monitoring of the following stockpiles during excavation: South Field Impacted Material Stockpile, OSDF East Impacted Material and Debris stockpiles, and OSDF West Impacted Material and Debris stockpiles.

U. If Contractor is unable to excavate within the limits of the IFP, move excavation to the South Field Impacted Material Stockpile and/or the South Field (SF), as directed by the Construction Manager. If Contractor is unable to excavate within the limits of the SF, move excavation to the Active Flyash Pile (AFP). Movement between excavation areas shall be at the direction of the Construction Manager and at no additional cost to FDF.

V. Temporary shutdown shall be as specified in Part 6.

W. Stump Grinding:

1. Grind stumps within SWU to a minimum depth of 12 inches or to the bottom of the root-mass within 18 inches of the stump in all horizontal directions. Grind the wood chips in pieces generally smaller than 12 inches dimensions.
2. Excavate the ground stump wood chips with the soil and haul to the OSDF. The volume of organic material shall be less than 1/4 of the truckload for hauling to the OSDF. Determination of the volume of organic material in the truckload shall be by visual observation by FDF.

X. Tolerances for the excavation grades shown on the Construction Drawings shall be from 0 to +6 inches.

Y. Perform stabilization of the excavated areas using crusting agent and temporary seeding in accordance with Sections 02275 and 02900, respectively.

Z. FDF will provide an existing Special Material Transfer Area. The Special Material Transfer Area shall be relocated as necessary to accommodate excavation. The Special Material Transfer Area shall be constructed with aggregate base stone. Aggregate material shall meet the requirements of ODOT Item 304. Compaction requirements for aggregate material shall meet or exceed ODOT Item 304 requirements. Special Material Transfer Area shall be as shown on the Construction Drawings and described in this Section.

3.2 UNCLASSIFIED IMPACTED MATERIAL EXCAVATION

A. Typically excavations shall proceed in an up gradient to down gradient pattern to the limits indicated on the Construction Drawings.

B. Excavate SWU from a location higher in elevation than the area to be excavated unless otherwise approved by the Construction Manager.

C. Select equipment and excavation methods to minimize obstruction of continuous visual observation of the excavation.

D. Excavation of the unclassified impacted materials shall proceed by excavating the material in 3 foot +/- 1 foot lifts and in maximum 100 foot by 200 foot areas, followed by monitoring of the surface area by FDF. During excavation of each lift, rough grade the area to drain. Maximum slope of the rough graded area shall be 6 percent. Move excavation operation a minimum of 50 feet from the previous excavation area while awaiting monitoring results. Construction Manager will notify Contractor of areas available for excavation.

E. If Above WAC Material or Special Materials are encountered, stop excavation, notify Construction Manager and move the excavation operation to another location as directed by the Construction Manager.

F. Hand excavate around the existing monitoring wells as shown on the Construction Drawings.

G. Impacted material for the protective layer and contouring layer shall be obtained from the OSDF West Impacted Material Stockpile and/or AFP. Impacted material for the select impacted material layer shall be obtained from the IFP, SF, South Field Impacted Material stockpile and/or OSDF West Impacted Material Stockpile. Impacted material requirements for protective layer, select impact material layer and contouring layer shall be as specified in the OSDF Phase II Technical Specifications.

3.3 LEAD CONTAMINATED SOIL EXCAVATION

A. Survey and stake the limits of lead contaminated soil excavation in accordance with Section 02050 and as shown on the Construction Drawings.

B. Excavate the unclassified impacted material overburden as indicated on the Construction Drawings and in accordance with this Section.

C. Excavate the lead contaminated soil to the limits and elevations as shown on the Construction Drawings.

D. Notify FDF thirty (30) calendar days prior to the start of excavation of the lead contaminated soil. Load the lead contaminated soil into metal boxes provided by FDF and haul to the Lead Contaminated Soil Container Transfer Area. FDF will sample the material prior to the Contractor fastening the lids and hauling to the transfer area. The boxes shall be loaded and fastened as per FEMP PT-0007.

E. Loaded containers shall not exceed 9000 pounds in gross weight. Containers shall be weighed by the Contractor prior to placement in the Lead Contaminated Soil Container Transfer Area. Lead contaminated soil is expected to have a dry unit weight of approximately 100 to 115 pounds per cubic foot (pcf).

F. Visually check lead contaminated soil material for free liquid prior to loading in the container. Moisture content in the soil shall not result in "bleeding" of liquids. Material with free liquid shall not be loaded until free liquid is no longer present.

G. Lead contaminated soil shall be loaded immediately adjacent to the lead contaminated soil excavation area.

H. Grade Lead Contamination Soil Container Transfer Area to drain into the existing ditch and compact before transfer of the containers. Loaded containers shall be placed on the compacted surface in the Lead Contaminated Soil Container Transfer Area in a manner that protects the containers from damage. Provide access and culvert as indicated on the Construction Drawings.

I. FDF will perform confirmatory sampling of the lead contaminated soil area. Contractor shall excavate in another location during sampling and while awaiting the results of the sampling, at no additional cost to FDF.

J. Perform additional excavation as directed by the Construction Manager and as specified in this Section.

3.4 ABOVE WAC MATERIAL EXCAVATION

A. Material above or outside the Above WAC excavation area shall be excavated as unclassified impacted material as specified in this Section. Areas anticipated to contain Above WAC material shall be as designated on the Construction Drawings.

B. Excavation within the Above WAC Material Area shall proceed by removing the material in 4 foot lifts, followed by monitoring at the perimeter of the above WAC excavation area by FDF. Survey the limits of the Above WAC Material excavation area after excavation of each lift.

C. If monitoring results along a side of the Above WAC excavation are above WAC, the Above WAC material excavation area shall be expanded 5 feet laterally in all directions from the location of the above WAC monitoring results.

D. After excavating a lift within the Above WAC area, excavate the surrounding unclassified impacted material to a depth of at least 1 foot above the excavated bottom of the Above WAC excavation area. Grade surrounding area to drain away from the Above WAC excavation except the loading area for the Above WAC Material. Loading area shall be graded to drain into the Above WAC excavation sump. Maintain loading area clear of spillage. Remove spillage prior to entry of next haul equipment in loading area.

E. Excavate Above WAC material and surrounding unclassified impacted material to the limits shown on the Construction Drawings or as otherwise directed by the Construction Manager.

F. Maintain sumps within the Above WAC excavation to collect water encountered during excavation. Water collected in these sumps shall be pumped to the nearest retention basin as specified in Section 02275. If sump excavation penetrates the Great Miami Aquifer (GMA), line the sump with a 60 mil textured HDPE geomembrane liner to prevent potential contamination of the GMA. Geomembrane liner shall be installed and anchored in accordance with Interceptor Ditch Detail as shown on the Construction Drawings. Geomembrane liner shall be as specified in Section 02275.

G. Loading area for haul equipment shall be adjacent to the Above WAC Area and as close to the Equipment Wash Facility as possible. The loading area shall be relocated as necessary during excavation.

H. Haul equipment shall remain outside of the Above WAC Area at all times.

I. Above WAC materials shall be hauled to the OU-1 Stockpile Area.

J. Requirements for unloading and stockpiling the Above WAC material at the OU-1 Stockpile Area shall be:

1. Construction of ingress/egress to the stockpile area.
2. Constructing an unloading area that prevents haul equipment tires from coming in contact with the Above WAC Material.
3. Placing material in a stockpile at a location designated by the Construction Manager.
4. Immediately repair damage to the stockpile structures to the original condition (i.e., silt fence, perimeter fence, etc.) caused by the Contractor, at no additional cost to FDF.
5. Dust suppressant shall be in accordance with Part 6.
6. Crusting agent shall be applied, within seven (7) calendar days, upon completion of the stockpile or if the stockpile is to be inactive for more than forty-five (45) calendar days.
7. Surface of the stockpile in use shall be compacted/sealed at the close of each work day to prevent fugitive dust and runoff.
8. Equipment and material used in the placement and management of Above WAC impacted material in the OU-1 Stockpile Area shall not be removed from the area without the approval of the Construction Manager. This equipment shall not be removed from area before washing. Equipment washing shall be performed within the OU-1 Stockpile Area. Wheels, tires, undercarriage and body of equipment shall be washed free of visible mud, dirt and debris.

3.5 SPECIAL MATERIAL EXCAVATION

A. Special Materials identified during excavation shall be excavated, segregated, managed, loaded, transferred and stored at the Special Material Transfer Area as directed by the Construction Manager.

B. FDF will be responsible for final disposition of the Special Materials.

C. The Special Material Transfer Area shall be relocated within approximately twenty feet of an existing gravel road within the limits of the SWU. Actual location shall vary as excavation progresses and shall be approved by the Construction Manager. Existing and relocated Special Material Transfer Area shall be as shown on the Construction Drawings.

D. PACM encountered during excavation shall be managed in accordance with Section 02210.

E. FDF will furnish containers necessary for handling, staging, transferring and disposal of Special Materials except for PACM.

3.6 EXCAVATION OF THE IMPACTED MATERIAL STOCKPILES

A. Excavation of the impacted material stockpiles, including the OSDF East and West Debris Stockpiles, as shown on the Construction Drawings shall be in accordance with unclassified impacted material excavation as specified in this Section. Stockpiles shall not require FDF monitoring during excavation and may be excavated at Contractor's discretion. Material excavation from stockpiles shall be hauled and unloaded in the OSDF.

B. After removal of the OSDF East and West Impacted Material Stockpiles excavate 12-inches below the stockpiles within the limits shown on the Construction Drawings. Notify the Construction Manager at completion of excavation of the East and West Impacted Material Stockpiles and prior to start of 12-inch

excavation, FDF will perform monitoring within two (2) work days after completion of stockpile excavation. Contractor shall perform excavation after completion of FDF monitoring. This material shall be considered as unclassified impacted material and shall be excavated, loaded, hauled, and unloaded in the OSDF.

C. Install erosion and sediment controls before the excavation of the stockpiles and maintain until completion of stockpile excavation. Erosion and sediment control measures shall be as specified in Section 02275.

D. After completion of stockpile excavation, grade the area to match the surrounding grade and provide temporary seeding as specified in Section 02900.

END OF SECTION

SECTION 02210
PRESUMED ASBESTOS CONTAINING MATERIALS (PACM)

PART 1 GENERAL

1.1 SCOPE

This section includes the requirements for handling, packaging, loading, hauling and unloading of Presumed Asbestos Containing Materials (PACM). The excavation, handling, packaging, loading and hauling activities at and from the Southern Waste Units (SWU) area are considered "disturbance of an inactive asbestos waste disposal site" and "asbestos waste handling," while the unloading activities at the On-Site Disposal Facility (OSDF) are considered "active asbestos waste disposal" — rather than "asbestos hazard abatement" — as those terms are used in the referenced administrative code and federal regulations.

1.2 RELATED SECTIONS AND PLANS

A. Section 02205 - Impacted Material Excavation.

B. Part 6 - Statement of Work.

C. Part 8 - Environmental Health and Safety, and Training Requirements.

D. Impacted Material Placement Plan, On-Site Disposal Facility, August 1997, Revision H.

E. Waste Acceptance Criteria Attainment Plan for the On-Site Disposal Facility, August 1997, Revision B.

1.3 REFERENCES

A. Ohio Administrative Code (OAC), Chapter 3745-20, Asbestos Emission Control.

B. Title 29, Code of Federal Regulations (CFR), Part 1926.1101, Asbestos.

1.4 HEALTH AND SAFETY REQUIREMENTS

Environmental Health and Safety, and Training requirements shall be as specified in Part 8.

1.5 SUBMITTALS

A. Submit a PACM Handling Plan, in compliance with all applicable federal (CFR) and state (OAC) requirements, within ten (10) calendar days from the Notice to Proceed for approval by the Construction Manager. The plan shall describe or present the following as a minimum (additional requirements are presented in Part 8):

1. Method to be used to ensure Contractor's (inclusive of Subcontractors) employees are informed of the presence of PACM in the project work area.
2. Method(s) to be used to establish a restricted area adequate to deter the entry of unauthorized personnel within 100 feet of the PACM work areas.
3. Personal protective equipment to be worn by employees.
4. Work practices to be observed by employees.
5. Methods to be used to handle and package friable PACM and to ensure no visible asbestos emissions during handling, loading, hauling and unloading.
6. Methods to handle non-friable PACM to minimize the potential for non-friable PACM to become friable and to ensure no visible asbestos emissions during handling, loading, hauling and unloading.
7. Methods to be used if PACM must be size-reduced to meet size criteria described in the Impacted Material Placement Plan for OSDF.
8. The encapsulant and surfactant agents to be used.
9. Product data and technical information including application instructions and Material Safety Data Sheet (MSDS) for each material proposed for use.
10. Labeling methods.
11. Identification of the Contractor's "asbestos competent person" personnel.

PART 2 PRODUCTS

2.1 MATERIALS

A. Clear polyethylene sheeting and clear polyethylene disposal bags shall be a minimum of 6 mils thick.

B. Materials to be used as encapsulants and surfactants shall be in original, new, and unopened packages and containers bearing manufacturer's name, label, and the following information:
1. Name of material.
2. Manufacturer's stock number and date of manufacture.
3. Manufacturer's name.
4. Thinning instructions.
5. Application instructions.

C. Surfactant (wetting agent) shall as specified by the following approved manufacturers:
1. Childers CP-225 CHIL-SORB.
2. Certech.
3. Expert Environmental Products.
4. International Protective Coatings Corp.
5. Or approved equivalent.

D. Encapsulants shall be as specified by the following approved manufacturers:
1. Childers - CP-240 CHIL-LOCK.
2. Certified Technologies - Certane 2050.
3. Expert Environmental Products - EPPCO #1.
4. International Protective Coatings - Serpiloc.
5. Or approved equivalent.

E. Other materials required by the Contractor for handling and packaging of friable PACM.

PART 3 EXECUTION

3.1 APPLICATION

A. FDF has provided the necessary notification of disturbance of an inactive asbestos disposal site required by OAC 3745-20-07(D). The OSDF is an active asbestos waste disposal site in accordance with OAC 3745-20-06.

B. The Contractor shall be responsible for:

1. Adherence and compliance to work practices and procedures set forth in applicable federal regulations (CFR) and state codes (OAC).
2. Ensuring Contractor's (inclusive of Subcontractor) employees are informed of the presence of PACM in the project work area(s) in accordance with 29 CFR 1926.1101(d) and OAC 3745-20-06(B)(4).
3. Establishing a restricted area adequate to deter the entry of unauthorized personnel within 100 feet of the PACM work areas in accordance with OAC 3745-20-06(B)(4).
4. Obtaining required training.
5. Conforming with Part 8 for training requirements.
6. Dust control in accordance with Part 6 and the Dust Control Plan.
7. Using wet methods and other work practices and engineering controls to prevent creation of visible asbestos emissions during handling of PACM.
8. Personal air monitoring in accordance with 29 CFR 1926.1101(f) including sampling necessary to complete initial exposure assessment.

C. The Contractor shall ensure an asbestos competent person is on-site anytime PACM is being disturbed, excavated, handled, loaded, hauled, or unloaded.

D. Contractor shall use the following project specific handling methods in accordance with the approved PACM Handling Plan:

1. Prior to excavation and at least once a day during excavation, the Contractor's asbestos competent person shall walk the work area and identify PACM visible at the surface.
2. Non-friable PACM, which is determined not to have the potential to become friable, shall be considered as unclassified impacted material and shall be excavated, loaded, hauled and unloaded as specified in Section 02205.
3. Friable PACM identified shall be either wetted with amended water (water mixed with surfactant) or encapsulated, and separated from the impacted material.
4. Care shall be taken so that the friable PACM does not break or crumble during handling. In the event that it breaks or crumbles during handling, encapsulate the exposed surfaces.
5. Friable PACM components meeting the OSDF Waste Acceptance Criteria (WAC) physical size criteria and removed intact in large pieces shall be wrapped in two layers of polyethylene sheeting, secured with duct tape, and labeled in accordance with OAC 3745-20-05(C)(1). Multiple pieces may be grouped prior to wrapping.
6. Surfactants or encapsulants shall be applied during sizing of any large pieces of friable PACM to meet the OSDF WAC physical size criteria.
7. Pieces of friable PACM not conducive to wrapping shall be bagged in a polyethylene bag, sealed, bagged in a second polyethylene bag, sealed, and labeled in accordance with OAC 3745-20-05(C)(1).
8. Friable PACM with sharp-edged components (e.g., nails, screws, metal lath, tin sheeting) capable of tearing the polyethylene bags or sheeting shall be handled in either of the following ways:
   (a) Pad or wrap and secure the sharp-edged components in a manner to prevent tearing of the polyethylene, then wrap or bag in accordance with the respective preceding entries.

(b) Place into Contractor-supplied, polyethylene-lined containers (i.e., fiberboard boxes or drums). Metal containers are not allowed.

(c) Container size is subject to the Impacted Material Placement Plan for OSDF for Category 5. The polyethylene liner shall be sealed prior to sealing the container. The container shall be labeled in accordance with OAC 3745-20-05(C)(1).

9. Wrapped, bagged, or containerized friable PACM shall be segregated from other excavated material and accumulated at the Special Materials Transfer Area. When a sufficient quantity for a segregated load is accumulated, it shall be loaded and hauled to the OSDF. Loads shall be prepared and secured to prevent any visible emissions, load loss, and spillage or leakage of liquids.

10. No PACM shall be left exposed at the surface of the excavation at the end of the work day.

E. Wrapped, bagged, or containerized friable PACM shall be unloaded in the OSDF as Category 5 material in accordance with the Impacted Material Placement Plan for OSDF, which presents additional requirements.

F. Each work day during disturbance, excavation, handling, hauling, loading, unloading or placement of PACM waste, the Contractor's asbestos competent person shall conduct a daily inspection of the PACM waste handling work area(s) and adjacent areas. If there is visual evidence of asbestos contamination (e.g., spills of PACM waste) outside the demarcated PACM waste handling work area(s), the Contractor shall take immediate action to abate the hazard. The incident shall be reported immediately to the Construction Manager.

END OF SECTION

SECTION 02212
MATERIAL IDENTIFICATION AND DOCUMENTATION

PART 1 GENERAL

1.1 SCOPE

This section includes the requirements for the impacted material identification and documentation to be performed by the Contractor. Materials handled but retained in a given Material Tracking Location (MTL) are not subject to these requirements.

1.2 RELATED SECTIONS

A. Section 02050 - Surveying.

B. Section 02205 - Impacted Material Excavation.

C. Part 8 - Environmental Health and Safety, and Training Requirements.

D. Impacted Material Placement Plan, On Site Disposal Facility, October 1997, Revision I.

1.3 REFERENCES

NONE

1.4 DEFINITIONS

A. Material Tracking Locations (MTLs) - The specific areas identified in this specification and as shown on the Construction Drawings; MTLs include:

MTL Number	MTL Description
CON-017	OU-1 Stockpile Area
SWU-001	Inactive Flyash Pile (IFP)
SWU-004	South Field Impacted Material Stockpile
OSD-002	On-Site Disposal Facility (OSDF)
SWU-007	Southern Waste Units (SWU) Equipment Wash Facility
SWU-011	Active Flyash Pile (AFP)
SWU-012	South Field Area (SF)
SWU-016	Special Material Transfer Area
SWU-017	Lead Contaminated Soil Container Transfer Area
SWU-018	Lead Contaminated Soil Area
SWU-019	Retention Basin 1
SWU-020	Retention Basin 2
SWU-021	Retention Basin 3
W800057	OSDF East Impacted Material Stockpile
W800011	OSDF East Impacted Debris Stockpile
W800056	OSDF West Impacted Material Stockpile
	Above WAC Material Excavation Area
W800010	OSDF West Impacted Debris Stockpile

Additional MTLs may be added as the SWU excavation progresses. These new MTLs will be identified by the Construction Manager and provided to the Contractor.

B. OSDF Manifest - Documents the identity and source location (and associated analytical data) of the material hauled to the OSDF. See Attachment I.

C. Field Tracking Log (FTL) - Documents the source MTL, quantity, material profile/description, and destination MTL of the material moved between MTLs (including Special Materials moved to the Special Material Transfer Area) by the Contractor. See Attachment II.

D. The following notes apply to the attachments to this Section:

Note 1. Contractor to provide information; FDF to record on form.

Note 2. Contractor equipment operator signature required.

Note 3. All other boxes to be completed by FDF.

1.5 SUBMITTALS

Submit for approval, within ten (10) calendar days from Notice to Proceed, the Material Identification and Documentation Work Plan. The plan shall include the following:

A. Methods for providing information for identification and documentation of material movement as specified in this Section.

B. A table which presents each piece of haul equipment, including the haul capacity in cubic yards, and the assigned unique alpha-numeric identifier.

C. Identify all competent personnel who will be involved with material identification and documentation.

1.6 HEALTH AND SAFETY REQUIREMENTS

Environmental Health and Safety, and Training requirements shall be as specified in Part 8.

PART 2 PRODUCTS

2.1 MATERIALS

A. Provide approximately 12-inch by 12-inch metallic identifier, two (2) per piece of hauling equipment, showing unique alpha-numeric equipment identification.

B. OSDF manifest and FTL forms will be provided by FDF.

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

A. The alpha-numeric identifier must be clearly visible on the two lateral sides of the equipment.

B. Contractor shall provide the following information for material documentation:

1.

Transfer Type	Target Form	Required Information	Frequency	Method
MTL to OSDF MTL	OSDF Manifest	source MTL; estimated volume; transported by; OSDF initial placement cell and/or grid; material returns/ comments	Per Load	transport signature; record to daily log
MTL to Special Material Transfer Area MTL	FTL	source MTL; destination MTL; material description; estimated volume or item count	Per event and Per MTL	record to daily log
MTL to other MTLs	FTL	source MTL; destination MTL; material description; estimated volume or item count	Per day and Per MTL	record to daily log

2. Estimate quantities of material by volumes (cubic yards) and type moved based on visual observations. Use the number of hauls per equipment type and each type's respective capacity to estimate volumes to the nearest 3 cubic yards per load.
3. Identify the type (and placement category for material to be placed in the OSDF) of material, based on a visual observation, in accordance with the Impacted Material Placement Plan for OSDF and as specified in Section 02205. Provide a general description such as "soil and soil-like material (including flyash, gravel, etc.)", "debris", or "Special Material".

a. An example of general descriptions of soil or soil-like material is 10 percent flyash/90 percent soil.

b. Special Materials will include atypical items like transformers or pressurized containers or other Special Material items as specified in Section 02205.

C. Carry the OSDF manifest in equipment when hauling to the OSDF.

D. Submit the OSDF manifest to the OSDF Construction Quality Control representative upon arrival at the OSDF.

E. Provide information for FTL(s) for materials moved to the Special Material Transfer Area to the Construction Manager at the time of delivery. Contractor shall record this information in Contractor's daily log.

F. Provide information for materials moved between MTLs (other than OSDF) at the close of business each working day, or at the morning safety briefing on the following working day. Contractor shall record this information in Contractor's daily log.

3.2 PREPARATION

A. Field stake delineation of MTLs as specified in Section 02050.

B. Train and familiarize personnel (minimum of 3) with the material identification and documentation requirements. Identify all competent personnel who will be involved with material identification and documentation to the Construction Manager.

3.3 METHODS AND REPORTING REQUIREMENTS

Comply with detailed methods included in approved Material Identification and Documentation Work Plan.

3.4 FIELD QUALITY CONTROL

FDF will perform intermittent inspections of material identification and documentation, and work with the Contractor to assist with the implementation of this Section.

END OF SECTION

ATTACHMENT I to Section 02212
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
OSDF MANIFEST

Generator Information

Manifest #

1. Project#	2. Project Name	3. Load Date	4. Load Time

Source MTL	Type	Profile #	
See Note 1			See Note 1

7. This material meets the WAC for the FEMP OSDF:
_____ Date: _____
(Generator)

8. Transported by: See Note 2 Org.: _____ Vehicle #: _____ Date: _____
(Transporter)

OSDF Receipt

1. COC Acceptance: _____ Date: _____ Time: _____

2. Initial Placement: See Note 1 (Cell) See Note 1 (Grid (Cat 2-5))

3. Material Return / Comments: See Note 1 _____

Note 1. Contractor to provide information; FDF to record on form.
Note 2. Contractor equipment operator signature required.
Note 3. All other boxes to be completed by FDF.

ATTACHMENT II to Section 02212
Field Tracking Log

1. Project #	2. Project Name	3. Date	Form #
		| | 19	

	4. From: Source MTL	Type	5. To: Destination MTL	Type	6. Material Profile # or Description	7. Volume	8. Waste Disposition Rep. Initials	A. Container Storage Storage Details	Storage Receipt
1.	See Note 1		See Note 1		☐ Th Contaminated Description: see Note 1	yd^3 See Note 1		Loc Area R S L	
2.					☐ Th Contaminated	yd^3		Loc Area R S L	
3.					☐ Th Contaminated	yd^3		Loc Area R S L	
4.					☐ Th Contaminated	yd^3		Loc Area R S L	
5.					☐ Th Contaminated	yd^3		Loc Area R S L	
6.					☐ Th Contaminated	yd^3		Loc Area R S L	

9. Container Destination _____

10. Project Mngr/Designee Name (PRINT): _____

Signature: _____ Date: _____

Entry Block Notes:
1. Enter the Project Number
2. Enter the Project Name
3. Enter today's date in MM/DD/YYYY format.
4. Enter the IIMS Designation for the source MTL and MTL Type.
   MTL Types: C = Container D = Material Drop-off F = Facility/Building G = Grid
   I = Interim Project Area P - Special Area S = Stockpile W = WAC Attainment Area
5. Enter the IIMS Designation for the destination MTL and MTL Type. Note: Use OSDF Manifest for shipments of impacted material to the OSDF. MTL Type codes are the same as in block 4.
6. Enter either the Profile Number or the Material Description Code of the material being moved. Profile Numbers to be used for above-grade debris are listed on the reverse of this form or on the Project MSCC. Material Description Codes for interim movements are:
   A = Asphalt/Concrete O = Other Manufactered Debris R = Rocks/Gravel
   S = Soil V = Vegetation/Organic Debris
7. Volume to the nearest cubic yard.
8. Printed initials of the project waste disposition representative responsible for oversight of waste generation/packaging activities.
9. Container storage facility assigned by waste disposition representative. Leave blank if the material is to be transported directly to a bulk waste management unit (stockpile or OSDF) as indicated by destination MTL in Block 5. If more than one container facility is to be utilzed, use a separate form for each.
10. Printed name of FDF Project Manager or designee, signature, and date of signature.

Section A. Container staging information; for MC&A use only.

SECTION 02275
EROSION AND SEDIMENT CONTROL

PART 1 GENERAL

1.1 SCOPE

This section includes, but is not limited to the following requirements for erosion and sediment control:

A. Soil erosion and sedimentation control measures for work included in this Contract including areas disturbed by the Contractor.

B. Dumped rock fill, erosion control blankets, geotextile and High Density Polyethylene (HDPE) liner for ditches, sumps and erosion control areas.

C. Management of erosion and sediment control measures installed by this contract and existing erosion and sediment control measures and facilities including Retention Basins 1, 2 and 3, transfer line and related appurtenances as shown on the Construction Drawings.

D. Control of surface water and management of ponded water in construction areas during site preparation and excavation activities as specified in this Section.

E. Management of the Active Flyash Pile (AFP).

1.2 RELATED SECTIONS AND PLANS

A. Section 02205 - Impacted Material Excavation.

B. Section 02900 - Seeding.

C. Part 8 - Environmental Health and Safety, and Training Requirements.

1.3 REFERENCES

A. Area 2 Phase I Southern Waste Units Implementation Plan for Operable Unit 2, October 1997, Revision C.

B. Latest version of American Society for Testing Materials (ASTM) Standards:

1.	ASTM D 3786	Standard Test Method for Hydraulic Bursting Strength of Knitted Goods and Nonwoven Fabrics-Diaphragm Bursting Strength Tester Method.
2.	ASTM D 4491	Standard Test Method for Water Permeability of Geotextiles by Permittivity.
3.	ASTM D 4533	Standard Test Method for Trapezoid Tearing Strength of Geotextiles.
4.	ASTM D 4632	Standard Test Method for Breaking Load and Elongation of Geotextiles (Grab Method).
5.	ASTM D 4751	Standard Test Method for Determining Apparent Opening Size of a Geotextile.
6.	ASTM D 4833	Standard Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products.

C. Title 40, Code of Federal Regulations, Part 261, Hazardous Waste Management System, Identification and Listing of Hazardous Waste.

1.4 SUBMITTALS

A. For each product proposed for use, submit the following to the Construction Manager for review within ten (10) calendar days from the Notice to Proceed:
   1. Manufacturer's product data and recommended methods of installation; and
   2. Certification from supplier or manufacturer that the product meets the material requirements of this Section.

B. Prepare and submit to the Construction Manager within ten (10) calendar days from Notice to Proceed a Surface Water Management and Erosion and Sediment Control Plan that includes the following, at a minimum:

1. descriptions of the surface water management and erosion and sediment control measures to be implemented throughout the duration of the contract;
2. methods for installing and maintaining surface water management and erosion and sediment control measures;
3. drawings illustrating, in plan view, the location and sequencing of the surface water management and erosion and sediment control measures;
4. methods and measures for collection and discharge of surface water from the excavated areas and measures to minimize erosion of the excavated areas during progress of the work, inclement weather and at the end of each work day.
5. inspection and management of the AFP prior to excavation.
6. methods for installing HDPE geomembrane in Interceptor Ditch 1, 2 and 3.

C. Submit manufacturer's material certification and installation methods and requirements for the geomembrane liner within ten (10) calendar days from the Notice to Proceed to the Construction Manager for review and approval. Certificates shall include the name of the manufacturer, chemical composition, and certification for the HDPE liner material.

1.5 QUALITY ASSURANCE PROGRAM

A. Inspect erosion and sediment control measures to evaluate effectiveness of the control measures. Any repairs to the erosion and sediment control measures shall be corrected within 24 hours of problem discovery. Inspections shall occur at the following minimum frequencies:
1. Weekly;
2. Daily after each rain event exceeding 0.5 inches at the Fernald Environmental Management Project (FEMP);
3. At least daily during prolonged rainfall events at the FEMP.

B. Records of inspections shall be kept on file at Contractor's site office and shall be submitted monthly to the Construction Manager.

1.6 HEALTH AND SAFETY REQUIREMENTS

Environmental Health and Safety, and Training requirements shall be as specified in Part 8.

PART 2 PRODUCTS

2.1 MATERIALS

A. Furnish silt fence with either woven or non-woven fabric. Silt fence shall:

1. be woven fabric consisting of slit films of polypropylene treated with ultraviolet light stabilizers, or be non-woven fabric consisting of long chain polymeric filaments or polyester yarns and treated with ultraviolet light stabilizers;
2. be inert to chemicals commonly found in soils and to hydrocarbons;
3. be resistant to mildew, rot, insects, and rodent attack; and
4. have fabric and fence post properties and minimum dimensions in accordance with ODNR.

B. Dumped Rock Fill: Dumped rock fill shall meet the requirements of ODOT Item 601.07 for the type specified on the Construction Drawings.

C. Nonwoven geotextile fabric for beneath dumped rock fill and the Special Material Transfer Area shall meet the following minimum values:

PROPERTY	TEST METHOD	ROLL VALUES
Grab Tensile Strength (lbs)	ASTM D4632	80
Puncture (lbs)	ASTM D4833	25
Trapezoidal Tear (lbs)	ASTM D4533	25
Mullen Burst (psi)	ASTM D3786	130
Apparent Opening Size	ASTM D4751	less than 0.6mm
Permittivity (cm/sec^2)	ASTM D4491	1×10^{-2}

D. The erosion control blanket shall be constructed of 100 percent coconut fiber stitch bonded between a heavy duty UV stabilized bottom net and a heavy duty UV stabilized top net. The crimped netting shall form prominently closely spaced ridges across the entire width of the mat. The netting shall be stitched together on 1.5 inch centers with UV stabilized polyester thread to form a permanent three dimensional structure. The mat shall have the following physical properties and be rated for 2 years service life for use on 1:1 slopes.

1. Material Content
   a. Coconut fiber: 100 percent; 0.5 pounds per square yard.
   b. Netting: Top and bottom - Heavy UV stabilized; polypropylene; 3 pounds per 1,000 square feet.
   c. Thread: UV stabilized polyester.
2. Physical Specifications (Roll)
   a. Width: 6.5 feet.
   b. Length: 83.5 feet.
   c. Weight: 30 lbs ±10 percent.
   d. Area: 60 square yards.

E. Geomembrane liner material for ditch liner shall be 60 mil textured High Density Polyethylene (HDPE). HDPE geomembrane liner shall be factory seamed and transported in largest sections possible to minimize field seaming. Field seams shall be as recommended by the HDPE manufacturer.

F. Dust suppression/crusting agent shall be as approved by the Construction Manager and shall meet the following requirements:

1. The dust suppression/crusting agent shall be a pine sap emulsion comprised of a 100% organic emulsion produced from naturally occurring resins (pine sap). The dust suppression/crusting agent shall not be comprised of chloride, lignosulfonate, petroleum, or asphaltic type emulsions. The dust suppression/crusting agent must provide dust suppression and surface stability for exposed soils, both disturbed and undisturbed soils, and exposed coal fired boiler ash (flyash). The dust suppression/crusting agent shall be compatible with application via a hydro seeder, and must not require intense cleaning of equipment after application. Once cured, the dust suppression/crusting agent shall be non-tracking (i.e., will not stick to boots or tires).
2. The dust suppression/crusting agent shall not have hazardous characteristics of ignitability, corrosivity, reactivity, or toxicity as defined in 40 CFR 261 for a hazardous waste in either its pre-applied or cured states.
3. The dust suppression/crusting agent shall have a flash point greater than 200°F. The dust suppression/crusting agent shall be neither a flammable nor combustible liquid per DOT definition. The dust suppression/crusting agent must not be susceptible to significant deterioration from exposure to the elements, including sunlight.

PART 3 EXECUTION

3.1 GENERAL

A. Construct and maintain erosion and sediment control measures as specified in this Section, and as shown on the Construction Drawings and the Surface Water Management Plan included as an appendix to the Area 2 Phase I Southern Waste Units Implementation Plan for Operable Unit 2. Maintain existing erosion and sediment control facilities and measures in accordance with Part 6 and Systems Plan.

B. As the excavation progresses, excavate depressions in the excavated area to be used as temporary water collection sumps as shown on the Construction Drawings. Water accumulated in the sumps shall be pumped directly to the nearest retention basin via portable sump pump system and flexible hose. Excavations shall be sloped to sumps and/or graded to drain to existing ditches discharging to the nearest retention basin. Excavations are to be kept free of standing water. Runoff into excavation areas shall be minimized by grading the surrounding area away from the excavation area and/or by diversions. If sump excavation penetrates the Great Miami Aquifer (GMA), line the sump with a 60 mil textured HDPE geomembrane liner to prevent potential contamination of the GMA. Geomembrane liner shall be installed and anchored in accordance with Interceptor Ditch Detail as shown on the Construction Drawings.

C. Remove erosion and sediment control measures at the direction of the Construction Manager after the disturbed areas are established with satisfactory conditions of seeding as specified in Section 02900.

D. Compact geomembrane liner anchor trench backfill soil by thoroughly tamping in maximum one foot lifts.

3.2 SILT FENCES

Install in accordance with the requirements of the ODNR Rainwater and Land Development Standards. Place at locations shown on Construction Drawings prior to start of site preparation and excavation activities. Remove accumulated sediment when deposition reaches one-half the height of the silt fence or sooner if accumulated sediment prevents adequate performance of silt fence; remove accumulated sediment within 24 hours of discovery. Sediment shall be removed as specified in Section 02205.

3.3 EROSION CONTROL BLANKETS

Install in accordance with manufacturer's recommendations in the ditches shown on the Construction Drawings. Erosion control blankets shall be anchored with wire staples, spaced at a maximum of 3 foot on center, with size as shown on the Construction Drawings.

3.4 INACTIVE EXPOSED EXCAVATION & CONSTRUCTION AREAS

A. Forty-five (45) calendar days shall be the maximum time that an area can be left in an exposed condition without seeding. If an exposed excavation area shall not be worked for a period of 45 calendar days, or more, the soils shall be stabilized within seven (7) calendar days of excavation by one of the following methods:
   1. During the seeding season, temporary seeding shall be applied as specified in Section 02900.
   2. During non-seeding seasons, crusting agents shall be applied as specified in this Section.

B. Forty-five (45) calendar days shall be the maximum time that a stockpile can be left in an exposed condition without seeding. Stockpiles that are to be inactive for a period of 45 calendar days, or more, shall be stabilized within seven (7) calendar days by means of a crusting agent, as specified in this Section.

3.5 RETENTION BASINS AND DITCHES

A. Remove accumulated sediment and debris from the existing retention basins and ditches. In no case shall sediment build up to a depth greater than the painted indicator on the riser pipe in the retention basins or to a depth greater than one-half the constructed depth of the ditch.

B. Remove sediment and debris as specified in Section 02205.

C. Protect the existing pump station, transfer line, HDPE liner and appurtenances during the removal of sediment and debris.

3.6 DUMPED ROCK FILL

A. Place and maintain dumped rock fill as indicated on the Construction Drawings and in accordance with ODOT Item 601.07.

B. Maintain the existing dumped rock fill in the SWU area.

3.7 HIGH DENSITY POLYETHYLENE (HDPE) LINER

A. Install and maintain HDPE liner in the ditches as shown on the Construction Drawings.

B. Maintain the existing HDPE liner in Retention Basins 1, 2 and 3 and ditches.

3.8 ACTIVE FLYASH PILE

Inspect the AFP on a monthly basis, as a minimum. Apply crusting agent to minimize dust in accordance with Part 6 and the Dust Control Plan.

END OF SECTION

SECTION 02850
EQUIPMENT WASH FACILITY

PART 1 GENERAL

1.1 SCOPE

This Section includes, but is not limited to:

A. Performance criteria for the Equipment Wash Facility.

B. Equipment and material to be provided by the Contractor.

C. Operation and maintenance of the Equipment Wash Facility.

D. Equipment Wash Facility provided by FDF.

1.2 RELATED SECTIONS AND PLANS

A. Section 02205 - Impacted Material Excavation.

B. Part 8 - Environmental Health and Safety, and Training Requirements.

1.3 REFERENCES

Area 2, Phase I, Site Preparation Technical Specifications and Construction Drawings.

1.4 HEALTH AND SAFETY REQUIREMENTS

Environmental Health and Safety, and Training requirements shall be as specified in Part 8.

1.5 SUBMITTALS

Within ten (10) calendar days from Notice to Proceed submit the Equipment Wash Plan to the Construction Manager for review and approval. The Equipment Wash Plan shall include:

A. Equipment wash methods and washing and maintenance equipment proposed to meet the performance criteria.

B. Utility requirements.

C. Operation and maintenance requirements and schedule, including removal of accumulated oil and sediment.

D. Catalog information and drawings of proposed washing and maintenance equipment.

E. Materials required for washing and maintenance.

F. Method(s) for removal and containerizing oil.

1.6 **FACILITIES PROVIDED BY FDF**

A. Concrete wash pad will be provided by FDF at the existing Equipment Wash Facility as shown on the construction drawings for the Area 2 Phase I Site Preparation. The wash pad will be equipped with three (3) water yard hydrants limited to a maximum flow of 5 gallons per minute (gpm) each (total flow rate of 15 gpm). A drain collection system, with trenches and an oil/water separator, capable of discharging a maximum flow of 25 gpm to the existing West Pump Station will be provided. The pump capacity at the existing West Pump Station is 50 gpm.

B. 15 gpm water supply and a 480 Volt, 3 phase, 60 Hz electric power supply will be provided at the existing Equipment Wash Facility.

PART 2 PRODUCTS

A. Provide washing equipment, including pressure washers and other equipment and materials required for equipment washing and maintenance of washing equipment and Equipment Wash Facility, holding tanks and associated piping to meet the performance criteria specified in this Section.

B. Signs and sign posts at Equipment Wash Facility for traffic control.

C. If more than 15 gpm flow of water is required (but less than 25 gpm) additional water for the equipment wash shall be provided by the Contractor at no additional cost to FDF. Provide holding tank and piping as required.

PART 3 EXECUTION

3.1 PERFORMANCE CRITERIA

A. Provide equipment wash and maintenance equipment and materials as per the approved Equipment Wash Plan.

B. Wheels, tires, undercarriage, and body of equipment shall be washed free of visible mud, dirt and debris before leaving the Equipment Wash Facility.

C. Keep Impacted Material Haul Road clean and free of visible mud, dirt, and debris.

D. Wash pad, drain line and trenches shall be kept clean to prevent flow blockage. Equipment wash shall be performed only within the wash pad area.

E. Water overspray shall be controlled and confined to the wash pad area.

F. Wash water flow to the existing West Pump Station shall be restricted to 25 gpm. Provide holding tank as required to recycle wash water before draining to the existing West Pump Station.

G. Clean and maintain oil/water separator as necessary and maintain wash pad and associated facilities.

H. Remove sediment from wash pad, drain line, trenches, and oil/water separator and haul to the OSDF as specified in Section 02205.

I. Remove oil in accordance with the Equipment Wash Plan and place in drums adjacent to the Equipment Wash Facility. Drums will be provided by and disposed of by FDF.

END OF SECTION

SECTION 02900
SEEDING

PART 1 GENERAL

1.1 SCOPE

This section discusses temporary seeding requirements which includes but is not limited to, soil preparation, seed mixture, fertilizer, lime, mulch and asphalt emulsion tackifier.

1.2 RELATED SECTIONS AND PLANS

A. Section 02050 - Surveying.

B. Section 02205 - Impacted Material Excavation.

C. Section 02275 - Erosion and Sediment Control.

D. Part 6 - Statement of Work.

E. Part 8 - Environmental Health and Safety, and Training Requirements.

1.3 REFERENCES

A. State of Ohio, Department of Natural Resources (ODNR): Rainwater and Land Development, Ohio's Standard for Storm Water Management, Land Development, and Urban Stream Protection - 1996.

B. Sitewide Excavation Plan, July 1997, Revision C.

C. American Association of State Highway and Transportation Officials (AASHTO) M 140, Standard Specification for Emulsified Asphalt (1993).

D. American Association of State Highway and Transportation Officials (AASHTO) M 208, Standard Specification for Cationic Emulsified Asphalt (1987).

1.4 SUBMITTALS

A. Submit the following to the Construction Manager within thirty (30) calendar days from Notice to Proceed for review and approval:
   1. Mulch, asphalt emulsion tackifier, and fertilizers.
      a. Manufacturer's product data and recommended methods of application for seed, mulches, lime, asphalt emulsion tackifier and fertilizer.
   2. Material Safety Data Sheet (MSDS) for lime, fertilizer, and asphalt emulsion tackifier.

B. Submit certificate of compliance for the following within fifteen (15) calendar days before the seeding. Do not sow seed until the Construction Manager has reviewed and approved the certificates.
   1. Certificate stating seed mixture, guaranteed percentages of purity, weed content, germination of seed, name of seller, the test date for the seed, and the net weight and date of shipment.
   2. Manufacturer's certificate stating the available nutrients contained in the proposed fertilizer;
   3. Manufacturer's certificate stating the lime meets the requirements of this Section;
   4. Manufacturer's certificate stating the wood cellulose mulch meets the requirements of this Section; and
   5. Manufacturer's certificate stating the asphalt emulsion tackifier meets the requirements of this Section.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver containerized materials in uniform packages bearing the name of the manufacturer, the net weight and a statement of content. Deliver containerized materials to the site in original, properly labeled, unopened, clean containers each showing the manufacturer's guaranteed analysis conforming to applicable regulations and standards.

B. Store materials in a dry area in a manner to prevent physical damage.

1.6 HEALTH AND SAFETY REQUIREMENTS

Environmental Health and Safety, and Training requirements shall be as specified in Part 8.

PART 2 PRODUCTS

2.1 MATERIALS

A. Furnish seed labeled in accordance with the U.S. Department of Agriculture (USDA) Rules and Regulations and applicable State seed laws. Furnish seed in sealed bags or containers bearing the date of expiration. Do not use seed after its expiration date. Each variety of seed shall: have a purity of not less than 90 percent, have a percentage of germination not less than 80 percent, have a weed to seed content of not more than 0.75 percent and contain no noxious weeds. The above percentages are by weight.

B. Seed mixture for temporary seeding shall be as follows:
1. Creeping Red Fescue - 20 pounds/acre.
2. Annual Ryegrass - 10 pounds/acre.
3. Kentucky Bluegrass - 15 pounds/acre.
4. Aliske Clover - 5 pounds/acre.
5. Flatpea - 5 pounds/acre.

C. Obtain water from the on-site sources shown on the Construction Drawings and specified in Part 6, unless otherwise approved by the Construction Manager.

D. Fertilizer:
1. Use fertilizer that is dry or liquid commercial grade fertilizer, uniform in composition that meets the requirements of all State and Federal regulations and standards of the Association of Agricultural Chemists.
2. Fertilizer shall be VCOTE 34-0-14 as manufactured by George W. Hill, Inc. No substitution allowed.

E. Furnish mulch meeting the following requirements:

1. Mulch shall be straw or wood cellulose fiber, free of clay, stone, foreign substances, and reasonably free of weeds.
2. Furnish straw that does not contain sticks larger than 1/4-inch diameter or other materials that may prevent matting down during application. Use straw that is free from mold and other objectionable material and in an air-dry condition suitable for placing with mulch blower equipment or other equipment as approved by the Construction Manager. Dust control during mulch blowing shall meet the dust control requirements specified in Part 6 and the Dust Control Plan specified in Section 02205. Straw shall be generally 6 inches or more in length.
3. Mulch applied by spraying shall be a wood cellulose processed into a uniform fibrous physical state. Use wood cellulose fiber containing a green dye that will provide for easy visual inspection for uniformity of slurry spread. The wood cellulose fiber including dye, shall contain no growth or germination inhibiting properties. The wood cellulose fiber shall be manufactured in such a manner that, after addition and agitation in slurry tanks with water, the fibers in the material become uniformly suspended to form a homogeneous material. When sprayed on the ground, the material shall allow absorption and percolation of moisture. The wood cellulose fiber shall meet the following requirements:

Quantity	Specification Limit
Particle Length	0.375 inch (maximum)
Particle Thickness	0.047 inch (maximum)
pH	4.0 to 8.5
Ash Content	1.6 percent (maximum)
Water Holding Capacity	90 percent (maximum)

F. Furnish lime that shall be agricultural ground limestone with a minimum total neutralizing power of 90 percent. The lime shall have a material gradation of at least 40 percent passing the U.S. Standard Number 100 sieve, and at least 95 percent passing the U.S. Standard Number 8 sieve.

G. Furnish asphalt emulsion tackifier for mulch conforming to AASHTO M 140 or AASHTO M 208. Asphalt emulsion tackifier shall be nontoxic to plants and shall be prepared so that it will not change in transportation or storage.

2.2 EQUIPMENT

Provide equipment of size and type to perform work specified in this Section.

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

A. Perform soil preparation by tilling/cultivating, to a depth of approximately 4 inches, to eliminate uneven areas and low spots. Maintain lines, levels and contours.

B. Repeat cultivation in areas where equipment used for hauling and spreading has compacted subgrade.

C. Temporary seeding shall be performed at completion of excavation. Stabilization of the inactive exposed excavation and other construction areas shall be as specified in Section 02275.

3.2 APPLICATION

A. Apply fertilizer, lime, seed, mulch and asphalt emulsion tackifier to disturbed areas and areas excavated and graded in this Contract requiring seeding unless otherwise indicated.

B. Application of Fertilizer:
   1. Apply fertilizer at a uniform rate of 12 pounds per 1000 square feet.
   2. Apply agricultural lime at a rate of two tons per acre.
   3. Disc lime and fertilizer thoroughly into upper 2 inches.
   4. Lightly water to aid the distribution of fertilizer.

C. Sequence of application of temporary seeding mixture, mulch and asphalt emulsion tackifier:
   1. Apply temporary seed mixture at the minimum rate as specified in this Section. Seeding shall be done by hydroseeding or by drilling to a depth of 0.25 inches followed by cultipacking.
   2. Do not seed areas in excess of that which can be mulched within 24 hours.
   3. Seeding season for temporary seeding shall be March 1 through October 31.
   4. Within 24 hours following seeding, apply mulch.
   5. Mulch shall be spread in a 1 to 2 inch layer.
   6. Apply water with a fine spray immediately after each area has been mulched. Wet soil at approximately a rate of 120 gallons per 1,000 square feet.
   7. Apply asphalt emulsion tackifier at the rate specified in this Section.

D. Spread straw mulch, either by hand or by blowing method, at the rate of 2 air-dried tons per acre.

E. Apply sprayed wood cellulose fiber, in lieu of straw mulch, at a net dry weight of 750 pounds per acre. Mix the wood cellulose fiber with water at a ratio of 50 pounds of wood cellulose fiber per 100 gallons of water.

F. Maintain mulching material in place with an asphalt emulsion tackifier. Apply asphalt emulsion tackifier at a rate of 120 gallons per acre.

3.3 MAINTENANCE

A. Maintain the seeded areas in satisfactory condition until acceptance of the seeding by the Construction Manager. Maintenance of the seeded areas includes repairing eroded areas, revegetating when necessary, watering and mowing (if applicable). A satisfactory condition of the vegetated area is defined as follows:

1. An area shall have a good, clean stand of perennial grass.
2. Within 3 weeks, germination must occur over 95 percent of the area with no single bare area greater than 3 square feet.
3. Within 3 months, 95 percent of the area must be covered with mature perennial grass.

B. Areas that fail to meet these requirements shall be repaired or reseeded as necessary to produce an acceptable stand of grass, as specified in this Section.

3.4 WARRANTY

A. Seeded areas shall be subject to a warranty period of not less than 24 months from initial establishment of temporary seeding over 100 percent of the seeded areas.

B. At the end of the warranty period, the Construction Manager will perform an inspection upon written request by the Contractor. Seeded areas not demonstrating satisfactory condition of vegetation as specified herein, shall be repaired, reseeded and maintained to meet all requirements, as specified herein, at the Contractor's expense.

3.5 ACCEPTANCE

A. The seeded areas will be accepted at the end of the warranty period if a satisfactory condition exists as defined in this Section.

B. After necessary corrective work has been completed, the Construction Manager will certify in writing the final acceptance of the seeded areas.

END OF SECTION